CLAIMS:

1. A method for replacing at least a portion of an intervertebral disc in a spinal column, comprising:

removing the portion of the intervertebral disc from the spinal column; and

inserting an apparatus for replacing the portion of the intervertebral disc into an intervertebral disc space defined substantially between adjacent vertebral bones of the spinal column, and positioning the apparatus between the vertebral bones,

wherein the apparatus is operable to permit the adjacent vertebral bones to articulate relative to one another about at least one of: (i) a first center of rotation for at least one of flexion and extension that is located outside the intervertebral disc space, and (ii) a second center of rotation for lateral bending that is located outside the intervertebral disc space.

2. The method of claim 1, wherein the first center of rotation is located outside the intervertebral disc space in one direction and the second center of rotation is located outside the intervertebral disc space in an opposite direction.

3. The method of claim 1, wherein:

the apparatus includes a first member having a first vertebral contact surface for engagement with an endplate of a first of the vertebral bones in the spinal column;

the apparatus includes a second member having a second vertebral contact surface for engagement with an endplate of a second of the vertebral bones in the spinal column; and

the first and second members are operable to articulate with respect to one another to permit flexion and extension in an anterior-posterior plane of the spinal column, and to permit lateral bending in a lateral plane of the spinal column, respectively.

4. The method of claim 3, wherein the first center of rotation is associated with the articulation of the first and second members in flexion and extension in the anterior-posterior plane of the spinal column, and the first center of rotation is located outside the intervertebral disc space in one direction.

5. The method of claim 4, wherein the second center of rotation is associated with the articulation of the first and second members in lateral bending in the lateral plane of the spinal column, and the second center of rotation is located outside the intervertebral disc space in an opposite direction.

6. The method of claim 3, wherein:

the first member includes a first articulation surface;

the second member includes a second articulation surface; and

the first and second articulation surfaces are operable to engage one another to permit flexion and extension in the anterior-posterior plane of the spinal column, and permit lateral bending in the lateral plane of the spinal column, respectively.

7. The method of claim 6, wherein:

the first articulation surface is defined by a concave arc, generally of radius A about a first axis substantially perpendicular to the anterior-posterior plane of the spinal column, and a convex arc, generally of radius B about a first axis substantially perpendicular to the lateral plane of the spinal column; and

the second articulation surface is defined by a convex arc, generally of radius C about a second axis substantially perpendicular to the anterior-posterior plane of the spinal column, and a concave arc, generally of radius D about a second axis substantially perpendicular to the lateral plane of the spinal column.

8. The method of claim 7, wherein at least one of: (i) the first and second axes perpendicular to the anterior-posterior plane of the spinal column are substantially coaxial; and (ii) the first and second axes perpendicular to the lateral plane of the spinal column are substantially coaxial.

9. The method of claim 7, wherein at least one of: (i) the first and second axes perpendicular to the anterior-posterior plane of the spinal column lie in a plane that is substantially perpendicular to the anterior-posterior plane; and (ii) the first and second axes

perpendicular to the lateral plane of the spinal column lie in a plane that is substantially perpendicular to the lateral plane.

10. The method of claim 7, wherein the first and second articulation surfaces are saddle shaped such that they are operable to engage when the first and second members are disposed in the intervertebral disc space to articulate in at least one of flexion, extension, and lateral bending.

11. The method of claim 3, wherein the first member includes an anterior flange including at least one through hole, and the method further comprises inserting at least one bone screw through the at least one through hole to fasten the first member to the first vertebral bone.

12. The method of claim 3, wherein the anterior flange of the first member includes at least two through holes, and the method further comprises inserting a bone screw through each of the through holes to fasten the first member to the first vertebral bone.

13. The method of claim 3, wherein the second member includes an anterior flange including at least one through hole, and the method further comprises inserting at least one bone screw through the at least one through hole to fasten the second member to the second vertebral bone.

14. The method of claim 3, wherein at least one of the first and second members further includes a curvate surface formed on its vertebral contact surface, and the method further comprises positioning the curvate surface to interface with a curvate portion of the endplate of the vertebral bone against which the vertebral contact surface is disposed.

15. The method of claim 3, wherein at least one of the first and second members further includes at least one spike formed on its vertebral contact surface, and the method further comprises urging the spike into the endplate of the vertebral bone against which the vertebral contact surface is disposed.

16. The method of claim 1, wherein the apparatus is operable to permit the first and second vertebral bones to at least axially rotate relative to one another through a range of angles.

17. The method of claim 16, wherein the apparatus is operable to permit the first and second vertebral bones to axially rotate relative to one another through the range of angles without substantially displacing the first and second vertebral bones away from one another.

18. The method of claim 17, wherein the range of angles is about plus/minus three degrees from a resting position.

19. The method of claim 17, wherein the apparatus is operable to permit the first and second vertebral bones to displace away from one another at axial rotations outside the range of angles.